

4. Install the brake tube (D, **Figure 30**) onto the wheel cylinders, then thread the nuts into the wheel cylinders and tighten them as specified in **Table 3**.
5. Install the brake panel as described in this chapter.

FRONT MASTER CYLINDER

Refer to **Figure 31**.

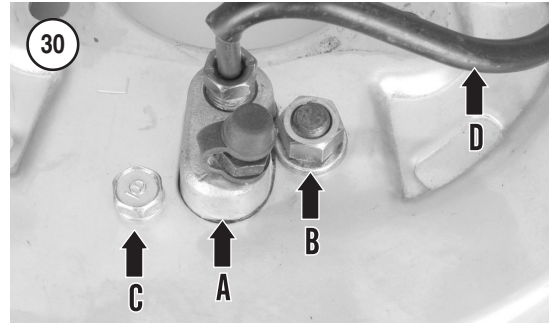
Removal/Installation

1. Park the ATV on level ground and set the parking brake.
2. Drain the brake fluid as described in this chapter.
3. Cover the area under the master cylinder to prevent brake fluid from damaging any component that it might contact.

CAUTION

If brake fluid should contact any surface, wash the area immediately with soapy water and rinse completely. Brake fluid will damage plastic, painted and plated surfaces.

4. Remove the banjo bolt (**Figure 32**) and the sealing washers securing the upper brake hose to the master cylinder. Place the loose end of the brake hose in a plastic bag to prevent the entry of dirt and foreign matter, and to prevent residual brake fluid from leaking out onto the frame components. Tie the brake hose to the handlebar.
5. Unbolt and remove the master cylinder and its clamp (**Figure 33**) from the handlebar.
6. If necessary, service the master cylinder as described in this chapter.
7. Clean the handlebar, master cylinder and clamp mating surfaces.
8. Install the master cylinder, clamp and mounting bolts onto the handlebar. Install the clamp with its UP mark and arrow facing up (**Figure 33**). Tighten the upper master cylinder mounting bolt to 12 N•m (106 in.-lb.).
9. Turn the master cylinder to align its clamp surfaces with the punch mark on the handlebar (**Figure 34**), then tighten the lower master cylinder mounting bolt (**Figure 33**) to 12 N•m (106 in.-lb.).
10. Connect the brake hose onto the master cylinder using the banjo bolt and two new washers. Install a washer on each side of the hose fitting. Tighten the banjo bolt (**Figure 32**) to 34 N•m (25 ft.-lb.).



11. Refill the master cylinder with DOT 3 or DOT 4 brake fluid and bleed the brake as described in this chapter.

WARNING

Do not ride the ATV until the front brakes are working properly. Make sure the brake lever travel is not excessive and the lever does not feel spongy. Either condition indicates that repeating the bleeding procedure is necessary.

12. Install the handlebar cover (Chapter Fifteen).

Disassembly

Refer to **Figure 31**.

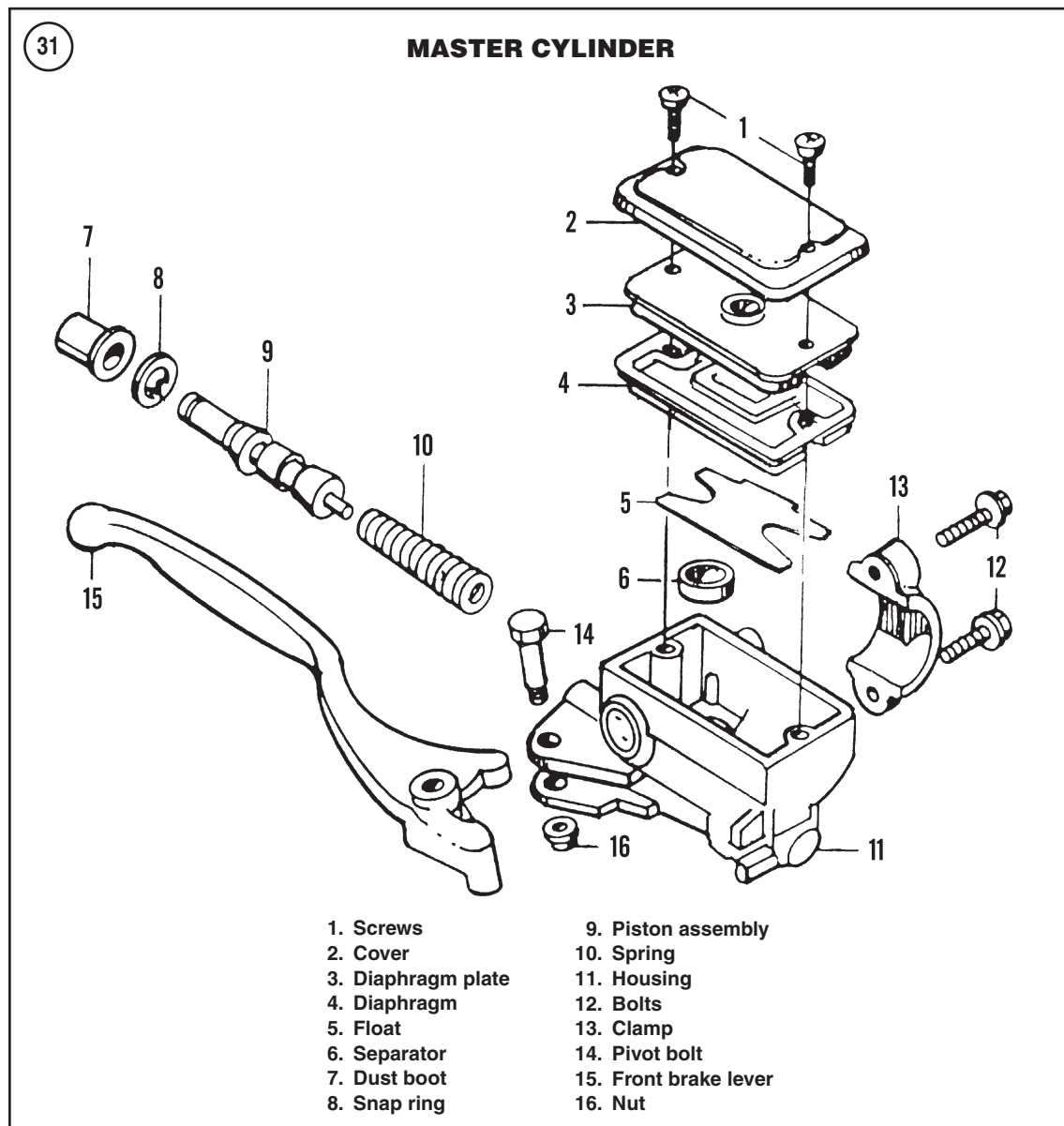
1. Remove the master cylinder as described in this chapter.
2. Remove the nut, bolt and front brake lever.
3. Remove the screws, top cover, diaphragm plate, diaphragm and float.
4. Pour out any brake fluid and discard it properly. Never reuse brake fluid.
5. Remove the dust boot (**Figure 35**) from the end of the piston and piston bore.

NOTE

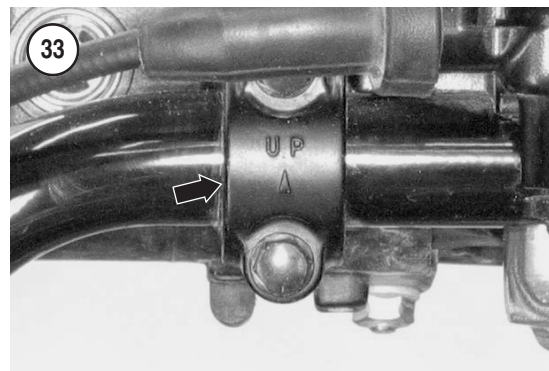
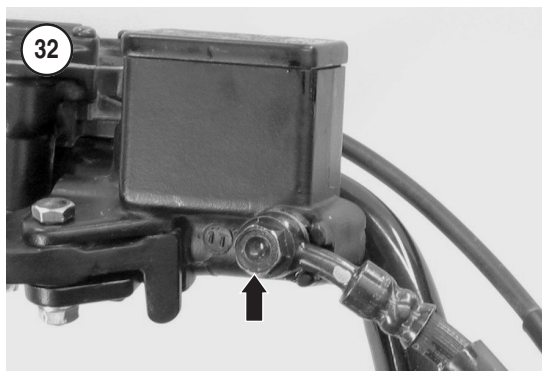
If brake fluid leaks from the piston bore, the piston cups are worn or damaged. Replace the piston assembly.

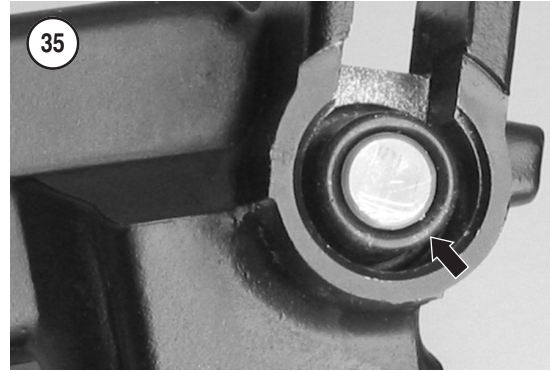
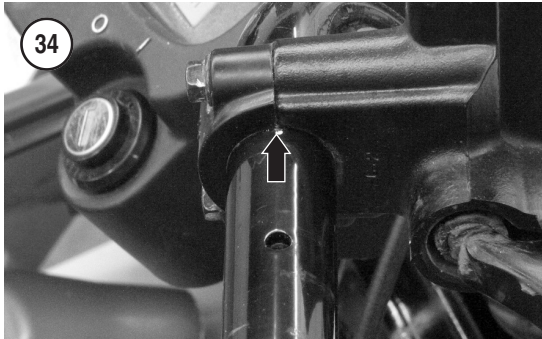
NOTE

*To hold the master cylinder when removing and installing the snap ring, thread a bolt with a nut into the master cylinder. Tighten the nut against the master cylinder to lock the bolt in place, then clamp the bolt and nut in a vise as shown in **Figure 36**.*



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6. Compress the piston and remove the snap ring (**Figure 37**) from the bore groove.
7. Remove the piston and spring assembly (**Figure 38**).
8. Remove the oil seal from inside the reservoir.

Inspection

Refer to **Table 1** when inspecting and measuring the front master cylinder (**Figure 31**) components in this section. Replace parts that are out of specification or damaged.

1. Clean the diaphragm, reservoir housing (inside) and piston assembly with new brake fluid. Place the parts on a clean lint-free cloth.

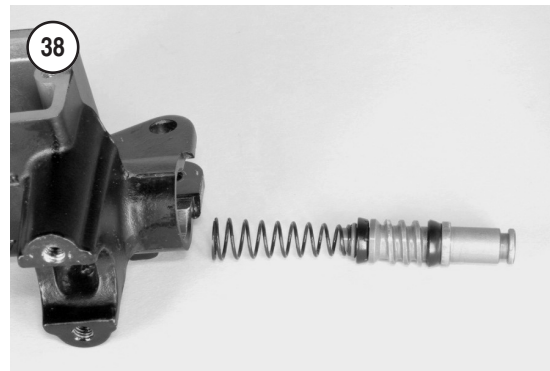
NOTE

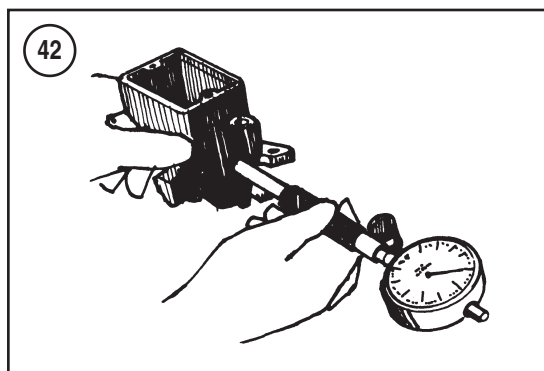
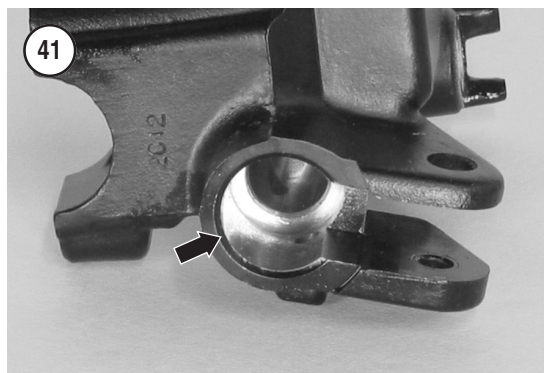
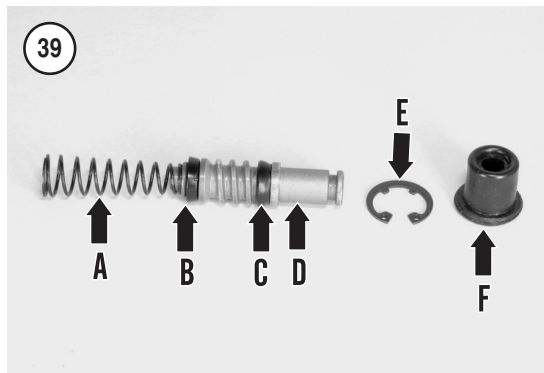
*Do not remove the secondary cup (C, **Figure 39**) from the piston when inspecting it in Step 2. If the secondary cup is damaged, replace the entire piston assembly. Leave the secondary cup in place so it can serve as a reference when installing the new cup onto the new piston.*

2. Inspect the piston assembly (**Figure 39**) for:
 - a. A broken, distorted or collapsed piston return spring (A, **Figure 39**).
 - b. A worn, cracked, damaged or swollen primary (B, **Figure 39**) and secondary cup (C).
 - c. A scratched, scored or damaged piston (D, **Figure 39**).

If any of these parts are worn or damaged, replace the piston assembly. Individual parts are not available separately from Honda.

3. Inspect the snap ring (E, **Figure 39**) for corrosion, rust, weakness or other damage. Replace it if necessary.
4. Inspect the boot (F, **Figure 39**) and replace it if it is damaged.





5. Measure the piston outside diameter (**Figure 40**) and replace it if it is out of specification.

6. Inspect the cylinder bore (**Figure 41**) for scratches, pitting, excessive wear, corrosion or other damage. Do not hone the bore to remove nicks, scratches or other damage.

7. Measure the cylinder bore diameter (**Figure 42**). Replace the master cylinder assembly if the bore diameter is out of specification.

8. Check for plugged supply and relief ports in the master cylinder. Clean them with compressed air.

NOTE

A plugged relief port will cause the brake linings to drag on the drum.

9. Check the entire master cylinder body for wear or damage.

10. Check the cover and diaphragm assembly for damage.

11. Inspect the banjo bolt threads in the master cylinder body bore. Repair minor damage with the correct size metric tap, or replace the master cylinder assembly.

12. Check the hand lever pivot holes and mounting lugs on the master cylinder body for elongation or cracks. If damaged, replace the master cylinder assembly.

13. Inspect the hand lever and pivot bolt and replace if damaged.

Assembly

1. Use new DOT 4 brake fluid when brake fluid is called for in the following steps. Do not use DOT 5 (silicone based) brake fluid.

2A. When installing a new piston assembly, perform the following:

- Soak the new secondary cup in new brake fluid for at least 15 minutes to make it pliable.
- Lubricate the new piston with brake fluid.
- After soaking the secondary cup in brake fluid, install it onto the piston as shown in C, **Figure 39**.
- Install the new primary cup onto the end of the new spring as shown in B, **Figure 39**.

2B. When reusing the original piston, lubricate the piston assembly with brake fluid.

CAUTION

When installing the piston assembly into the master cylinder bore, do not

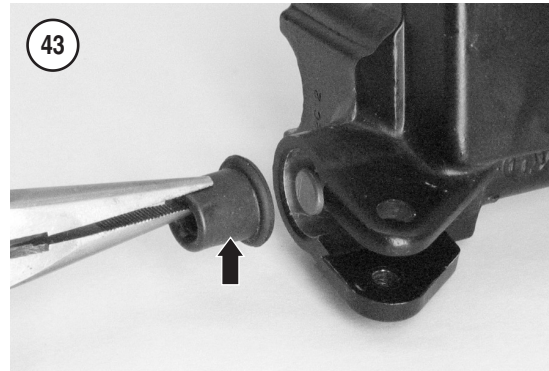
allow the cups to turn inside out as this damages them and allows brake fluid to leak out of the bore.

3. Install the spring and piston assembly into the master cylinder bore in the direction shown in **Figure 38**. Make sure the cups did not turn inside out.
4. Push the piston in and hold it in place, then install the snap ring (**Figure 37**) into the cylinder bore groove. Install the snap ring with its flat edge facing out (away from the piston). Make sure the snap ring is fully seated in the bore groove. Push and release the piston a few times. It should move smoothly and return under spring pressure.
5. Install the dust boot into the end of the cylinder bore. Seat the large boot end against the snap ring. Seat the small boot end into the groove in the end of the piston (**Figure 43**). Make sure it is correctly seated in the cylinder bore (**Figure 35**).
6. Install the brake lever as follows:
 - a. Install the brake lever and its pivot bolt. Tighten the pivot bolt to 6 N•m (53 in.-lb.). Operate the brake lever, making sure it moves smoothly.
 - b. Install the brake lever nut. Then hold the pivot bolt and tighten the nut to 6 N•m (53 in.-lb.). Operate the brake lever again, making sure it moves smoothly with no roughness or binding.
7. Temporarily install the master cylinder cover assembly.
8. Install the master cylinder as described in this chapter.

BRAKE FLUID DRAINING

Drain the brake fluid before disconnecting any of the front brake hoses or lines. To drain the front brake system, obtain an empty bottle, a length of clear hose that fits tightly onto the wheel cylinder bleed valve, and a wrench to open and close the bleed valve (**Figure 44** and **Figure 45**). A vacuum pump (**Figure 46**) can also be used to drain the brake system.

1. Turn the handlebar so the front master cylinder (**Figure 32**) is level with the ground.
2. Remove the reservoir cover and diaphragm assembly.
3. Connect a hose to one of the wheel cylinder bleed valves. Insert the other end of the hose into a clean bottle. See **Figure 44**.



4. Loosen the bleed valve and pump the brake lever to drain part of the brake system.
5. Close the bleed valve when fluid stops flowing through the valve.
6. Repeat Steps 4-6 for the other side. Because air has entered the brake lines, not all of the brake fluid will drain out.

NOTE

Because some residual brake fluid will remain in the lines, be careful when disconnecting and removing the brake hoses in Step 9.

7. Reinstall the diaphragm assembly and reservoir cover.
8. Perform the required service to the front brake system as described in this chapter.
9. After servicing the brake system, bleed the front brakes as described in this chapter.

BRAKE BLEEDING

Bleed the front brakes when they feel spongy, after repairing a leak or replacing parts in the system, or when replacing the brake fluid.

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